

**SF Bay PCBs TMDL Round Table Meeting Summary**  
**October 31, 2006**  
**9:30 – 12:30**

**Attendees**

Bhupinder Dhaliwal, CCCSD  
Rose Pedregosa, Tesoro Corp.  
Marcus Cole, Valero  
Kevin Buchan, WSPA  
Diane E. Fleck, USEPA  
Nancy Yoshikawa, USEPA  
Jamison Crosby, CCCWP  
Monica Oakley, Oakley Water Strategies  
Eric Dunlavey, City of San Jose  
Heather Loso, URS  
Julie Weiss, City of Palo Alto  
Sandy Olliges, NASA Ames  
Geoff Brosseau, BASMAA  
Andria Ventura, Clean Water Action  
Jon Konnan, BASMAA  
Lester McKee, SFEI  
Francois Rodigari, EBMUD  
Betsy Elzufon, LWA

Larry Bahr, FSSD  
Leslie Lundgren, Tetra Tech  
Jay Davis, SFEI  
Kelly D. Moran, TDC  
Jim Ervin, City of San Jose  
Will Bruhns, SF Bay Water Board  
Chris Peterson, Dutra Group  
Ben Horenstein, EBMUD  
Amy Chastain, Baykeeper  
Paul Singarella, Latham and Watkins  
Andy Gunther, AMS / CEP  
Chuck Weir, EBDA  
Fred Hetzel, SF Bay Water Board  
Sandi Potter, SF Bay Water Board  
Naomi Feger, SF Bay Water Board  
Tom Mumley, SF Bay Water Board  
Mike Connor, SFEI  
Paul Salop, AMS / CEP

**9:30 Introduction**

Mike Connor of SFEI led introductions and provided basic ground rules for the discussion.

**Meeting Purpose:**

- Explore other options for implementation
- Get feedback on how realistic the plan is
- Receive feedback on how the proposed implementation plan will solve the PCBs problem

**Overall Goal:** To arrive at a workable PCBs TMDL Implementation Plan

**9:40 Background Information on the PCBs TMDL**

Fred Hetzel provided a brief introduction and update on the PCBs TMDL Basin Plan Amendment and Implementation Plan (see Attachment 1 for PowerPoint presentation).

**Comment** - How do these numbers differ from those presented in the 2004 TMDL project report, and what is the process that got us here?

*Water Board response – The fish tissue target was recalculated based on comments received on the draft project report. We believe the calculations are consistent with CTR and equally protective. We’ve taken out the reference to a sediment target, but are still using a sediment goal to calculate allocations. The basis for all calculations will be presented in the references and administrative record.*

## **10:00 Implementation Plan Discussion**

Water Board staff led the discussion of a series of categories of external sources, each with a proposed waste load allocation (WLA) included in the TMDL:

### ***External Sources***

#### **Atmospheric Deposition**

Water Board Summary:

- Atmospheric deposition is currently a net loss from the Bay
- No new actions are necessary

**Comment** – In the 2004 project plan, the Water Board was contemplating requiring refiners to perform a study on emissions, but there is no mention of that now.

*Water Board response – This study was contemplated as a means of confirming that petroleum refinery emissions are not a significant source of PCBs to the Bay. Because there are no reasons to believe that this combustion source contributes more PCBs to the Bay than other combustion sources, staff decided not to pursue this study.*

**Comment** – Has there been an attempt to quantify deposition of PCBs to the Bay?

*Water Board response – Based on our prevailing onshore winds, deposition to the Bay probably isn’t significant and is less than losses due to volatilization.*

#### **Central Valley Watershed**

Water Board Summary:

- Lower PCBs concentrations on sediments entering the Bay from the Central Valley
- Sediments carried by episodic high flow events are transported through the Bay and out to the Ocean via the Golden Gate
- No new actions required; allocation will be attained via attenuation

**Comment** – Are there any known sources that could have permit limitations that could help make the Bay cleaner sooner?

*Water Board response – We are not aware of any.*

**Comment** – How long should it take to reach our goal?

*Water Board response – It is likely to be on the order of decades.*

**Comment** – Based on previously proposed allocations, the WLA has changed significantly (from 32 kg down to 10 kg). What motivated the change in WLA?

*Water Board response – We have reevaluated the data and applied a lower sediment PCBs concentration goal.*

### **Urban Stormwater Runoff**

Water Board Summary:

- Abate PCBs in runoff from areas with elevated PCBs in soils / sediments
  - Investigate and cause remediation of on-land contaminated soils / sediments
  - Improve system design, operation, and maintenance to increase sediment removal
  - Strategic runoff treatment retrofits
- Abate PCBs in runoff from all areas
  - Control / oversee removal of PCBs-containing equipment
  - Control / manage release of PCBs from building materials and waste during demolition / remodeling

**Comment** – Proposed 95% reduction is a daunting prospect. There is great uncertainty regarding the effectiveness, including cost of the proposed actions. Over the Municipal Regional Permit (MRP) permit cycle, the BASMAA agencies will be trying pilot efforts to see what is most effective. We will need to rely on adaptive management to achieve the reductions. It will also be important to consider multi-pollutant benefits that may be achieved by actions undertaken.

*Water Board response – we are in agreement.*

**Comment** – There were multiple comments provided on the issue of an existing disparity between CERCLA / RCRA cleanup standards and what is needed to achieve the goals of the PCBs TMDL. Can the Water Board request that cleanup standards for federal certification of cleanups be changed, at least within the Bay Area? Often, the responsible parties (RPs) are long gone, and nobody is going to take responsibility for the cleanup unless there is an economic incentive to do so. We may need to be creative with funding and explore other options (e.g., grants, bonds). It would be most effective if everyone involved in implementation of the TMDL worked together to develop a strategy for tackling the issue and worked cooperatively to implement it.

*Water Board response – Working cooperatively with other oversight agencies is on our list of things to do that will be built into the implementation plan.*

**Comment** – Are there actions we know of that have proven to be effective in removing loads of PCBs?

*Water Board response* – We listed all implementation actions that may be effective in the implementation table for the MRP (go to PCBs Table at the following url:

<http://www.waterboards.ca.gov/sanfranciscobay/mrp.htm#tmdl>). We welcome input on these and additional actions.

**Comment** – Given that most of the assumed toxicity from dioxins is due to presence of PCB-like dioxins, why are we separating out PCB-like dioxins from this TMDL, and including a separate 303(d) listing for dioxins?

*Water Board response* – San Francisco Bay has been listed separately on the 303(d) list for PCBs, PCB-like dioxins, and dioxins and furans. It is expected that load reduction measures for PCBs and PCB-like dioxins are the same and therefore both listings are being addressed in this TMDL.

**Comment** – How will we implement the actions associated with control of PCB sources from building materials?

*Water Board response* – Part of the implementation scheme is to figure out if control of these sources is an effective action, and if so, how best to do it. There is a San Francisco Estuary Project grant proposal currently under review that would assist with this effort. Water Board staff is already aware of local Department of Defense (DOD) facilities where this could be an important issue.

**Comment** – Even though runoff from DOD properties is considered part of the urban runoff WLA, stormwater managers have no authority over these facilities.

*Water Board response* – The Water Board, under its existing authorities, has made efforts to address stormwater controls at these facilities. Additionally, most of these sites are being transitioned to local municipalities and therefore, they will be covered under the municipal stormwater program in the future. Therefore, local municipalities need to make sure these facilities are addressed adequately by the military so that they will not be a source of future runoff.

**Comment** – Environmental organizations can't necessarily comment on the appropriateness of the MRP conditions because they are largely technical issues. The current uncertainty regarding the effectiveness of the proposed actions makes the environmental community uncomfortable. These organizations are interested in seeing that pilot projects get underway as soon as is possible, but are also interested in seeing that projects that appear effective are not tested into the ground, but moved forward.

*Water Board response* – we are in agreement.

### **Wastewater Dischargers**

Water Board Summary:

- Maintain current treatment performance (solids removal)
- Identify and manage controllable sources
  - e.g. Industries with PCBs-containing equipment and /or historical uses

**Comment** – As growth in the Bay Area increases in population, the volume of influent associated with it is expected to increase. Loads to the Bay should also be expected to rise if we assume current treatment performance. Setting the current load as the WLA is therefore really a decrease in load for the wastewater agencies.

*Water Board response – We disagree that the load will necessarily rise as growth does. Recent history has shown us that the loads have continued to go down even as the population increases. If the POTWs want to assert that growth pressure is an issue, they will need to provide evidence to support this. The Water Board cannot provide an allowance for growth without a substantive basis for it.*

**Comment** – Do we need a watershed permit to implement WLAs? This was in the 2004 report but does not appear now.

*Water Board response – The current implementation scheme is not based on a watershed permit, but also does not preclude such a permit. It is open for discussion.*

**Comment** – Regarding the issue of numeric limits in wastewater permits, some participants felt strongly that numeric limits need to be part of permits. Others felt that numeric limits are only used as the basis of lawsuits, and do not help attain TMDL goals.

*Water Board response – The TMDL implementation plan will likely recommend numeric limits in wastewater permits.*

#### Treatment of Urban Stormwater by Wastewater Dischargers

##### Water Board Summary:

- Strategic diversion of dry weather and first flush runoff discharges
  - Areas with elevated PCBs in soils / sediments
  - Existing runoff pump stations
- Joint efforts by urban runoff and wastewater agencies
- How this is implemented will need to be developed

**Comment** – Stormwater and wastewater managers commented that the idea has merit, and appreciate the additional allocation given to the category. They pointed out that there is one pilot diversion project in process in the Ettie Street watershed, but that there are uncertainties regarding issues such as treatment capacity, seasonality of loadings, proximity between pump stations or other diversion points and closest treatment plants, etc. that will need to be better understood before the potential effectiveness of the action can be determined.

**Comment** – Are there any potential negatives associated with this action?

*Wastewater Agency response – If wet weather flows were diverted, but the sanitary system not managed correctly; there is the possibility of sanitary sewer overflows. If dry weather flows were diverted, this could impact aquatic habitat provided through these flows.*

**Comment** – If the loads of PCBs to wastewater plants are increased through diversions, the wastewater agencies will incur additional costs to handle.

*Water Board response – The pollutant removal efficiencies of wastewater treatment plants are much better than any structural treatments that could be implemented on the stormwater side. Therefore, if and where opportunities exist we need to consider using our best tools.*

### ***Internal Sources***

Water Board staff next led a discussion of several categories of internal, or in-Bay sources, for which there is no proposed WLA, and other issues of relevance to the TMDL.

### **Dredging**

Water Board Summary:

- Long Term Management Strategy (LTMS) in-Bay disposal volume targets will be attained (1.2 Mcy/yr disposal)
- No disposal of sediments above ambient PCB concentrations.

### **In-Bay Hot Spots**

Water Board Summary:

- Water Board actions to:
  - Maintain inventory and set priorities for investigating and remediating sites
  - Issue clean-up orders for certain sites
- Other agency actions
  - Coordination between USEPA and CA DTSC with Water Board on clean-up actions
- Responsible Parties' actions
  - Conduct site investigation / clean-up activities
  - Quantify PCBs mass on site and rate of sediment accretion or erosion

**Comment** – Why is there no allocation for this category?

*Water Board response – The TMDL is based on a mass balance model that says external loadings below 10 kg/yr will lead to the Bay achieving goals of the TMDL. Hotspots exist because they are zones of deposition and sediment transport, i.e., loading to the Bay from these areas may not be significant. Given the uncertainty in the loading from these hot spots, no allocation was made.*

**Comment** – By removing a sediment target from the TMDL, does that mean that we now can't use that target to get cleanups done to an appropriate standard?

*Water Board Response – The earlier proposed sediment target was not intended to be a cleanup standard. Clean-up standards are set through site-specific investigations and an analysis of feasibility.*

**Comment** – Can we set a clean up standard for hotspots through the TMDL?

*Water Board response – Identifying a defensible standard and gaining approval for it would likely take a considerable amount of time. Thus, it was decided not to include this in the implementation plan for the TMDL.*

**Comment** – Do we have modeling data that would show how different cleanup standards would affect achieving the goals of the TMDL? In which areas might cleanups be the most effective?

*Water Board response – We do not have this kind of modeling data and thus can't answer this question at this time.*

**Comment** – Modeling would help, but the cleanup actions are the more important issue here. In completed cleanup actions, how did you know you were done? We would like to see this standard outlined in the TMDL so we know we're going to reach the goals we want. What is the standard used for clean-ups?

*Water Board response – Clean-up goals vary due to a number of factors analyzed in site-specific risk assessments and feasibility studies. There is no one standard used for clean-ups of Bay sediment.*

**Comment** – If you define a hotspot as 1ppm, but your clean-up standard for a particular site is 1 ppm, you are only requiring cleanup to a hotspot level.

*Water Board response – Cleanup standards are different depending on the site. There is only one location, Alameda Point, Seaplane Lagoon, where an agreement has been reached to cleanup PCBs in the sediments to about 1 ppm. At that site, an analysis was done to show that on average the residual levels of PCBs remaining in the sediments will be much lower than the not-to-exceed cleanup goal.*

**Comment** – Do we know where these hot spots are? If so, what is happening with them?

*Water Board response – We believe we have a robust inventory of where these sites are. There are a finite number of sites with somewhat elevated concentration of PCBs. Most are in some phase of the cleanup process, from site investigation to active remediation (see Attachment 1).*

**Comment** – We want to make sure that we have the same kinds of drivers and pressures in place so that cleanups of the internal sources will proceed in a timely manner. We don't expect this to happen overnight. How do we make the general plan accountable in the fastest amount of time that we can? Is there anything we can do to push EPA to clean up these hotspots to the appropriate standard and more quickly.

*USEPA response – The more specific language that is included in the TMDL the better it will be for USEPA to act forcefully and in a timely fashion (e.g., specific sites, specific clean-up standards required, a concentration relative to ambient Bay concentrations, proposed schedule).*

### ***Risk Management***

#### **Water Board Summary:**

- Take actions to address public health impacts of PCBs in San Francisco Bay / Delta fish.
- Water Board will work with DHS, OEHHA, and dischargers to provide multilingual fish consumption advice
- Inform the public about monitoring data and findings regarding hazards of eating PCB contaminated fish
- Perform special studies needed to support health risk assessment and risk communication

**Comment** – Fish consumption advice and risk communication is not what the State Board is looking for; risk reduction/mitigation is the goal. Education is only part of it. It needs to be community driven. What do we do to protect people? What strategies can be implemented? The December 19<sup>th</sup> risk management meeting hosted by the Clean Estuary Partnership is a good start. Don't limit our language to just communication, consider actions also. It's OK to say these actions are to be determined.

*Water Board response – We are working with the community to identify implementation actions that will reduce the human health risk associated with fish consumption. The Water Board does not have the authority or resources to implement all the ideas that might be suggested but is committed to identifying innovative actions and working together with other regulatory agencies and the community to implement them.*

**Comment** – A large amount of energy is used, along with associated environmental byproducts (e.g. diesel exhaust), in the handling of dredge spoils in the dewatering and waste handling process. We should consider secondary environmental impacts of this activity.

*Water Board response – In an ideal circumstance, we are able to evaluate and consider overall environmental impacts of various dredge disposal options and to dispose of waste in a way that is the least damaging to the environment and yet cost- effective.*

### **12:15 Summary of Next Steps**

Water Board staff presented a schedule for upcoming TMDL milestones:

- Peer review (December / January)
- Public notice (February / March)
- Testimony hearing (April / May)
- Adoption hearing (June / July)

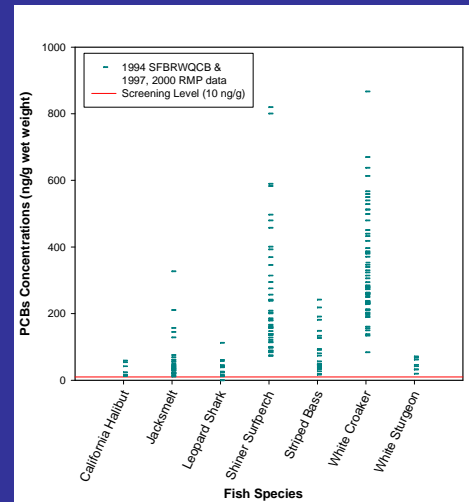


Attachment 1

PCBs TMDL Basin Plan Amendment and Implementation Plan  
October 31, 2006 Presentation Slides

## PCB TMDL Background

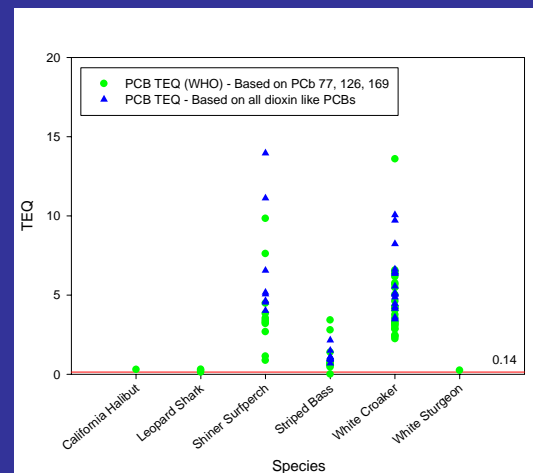
## PCBs Issue in San Francisco Bay

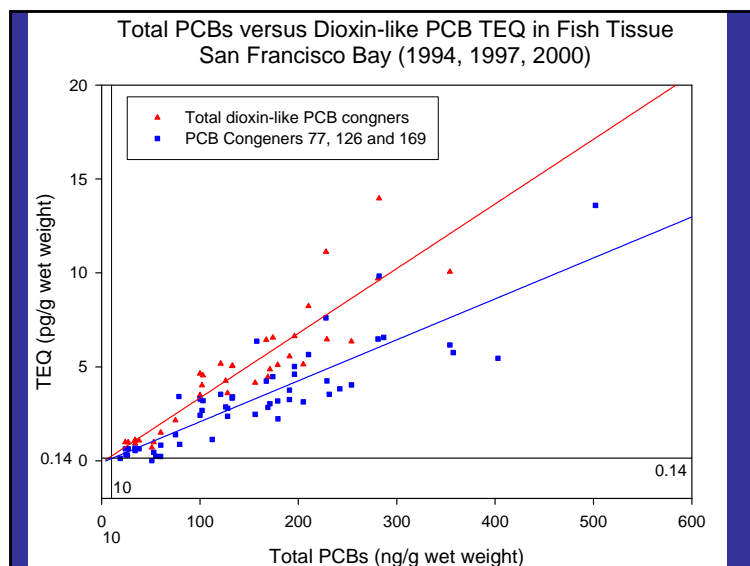


## Numeric Target

- 10 ng/g wet weight in white croaker and shiner surfperch
- Protective of human health for both total and dioxin-like PCBs
- Attainment of this target results is protective of wildlife targets

## Dioxin-like PCBs in Bay fish





## PCB Loads to SF Bay

Source Category	PCBs Loads Kilograms per year
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### External

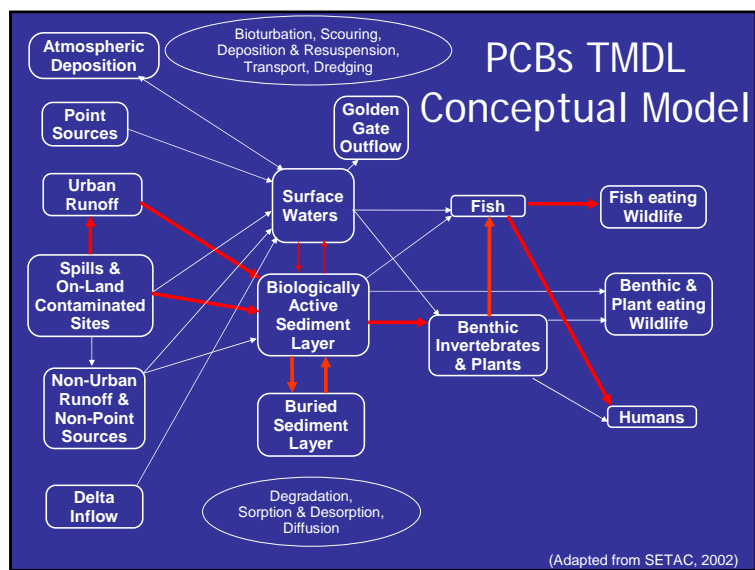
Direct Atmospheric Deposition	0
Central Valley Watershed	42
Municipal Wastewater Dischargers	2.3
Industrial Wastewater Dischargers	0.035
Urban Stormwater Runoff	40
Non-Urban Stormwater Runoff	0.1

### Total

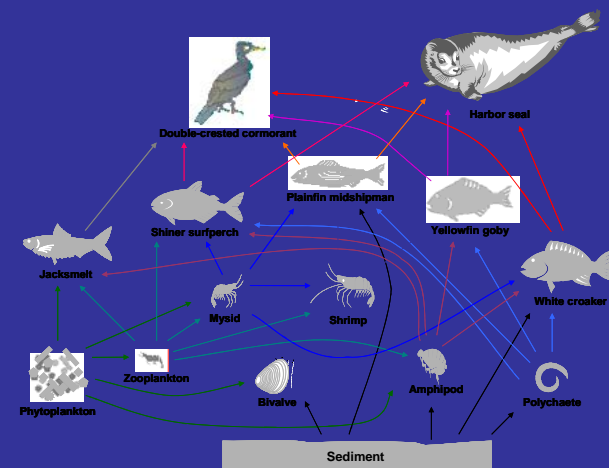
84<sup>a</sup>

### Internal

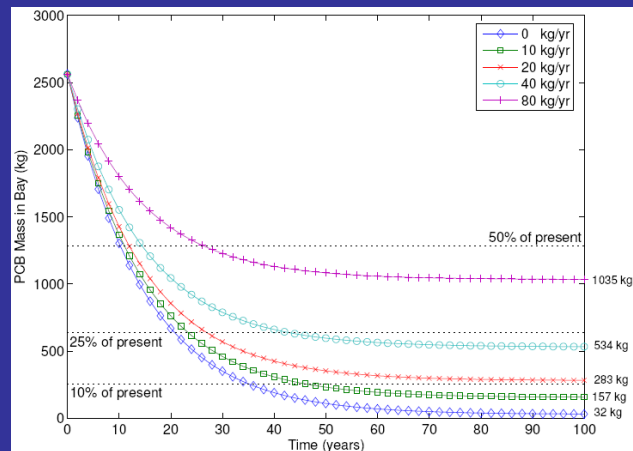
Sediment Dredging and Disposal	Net Loss
Bed Erosion	Not Quantified
In-Bay Contaminated Sediment	Not Quantified



## PCB Food Web Model for San Francisco Bay



## PCB Long Term Fate in San Francisco Bay



## Total Maximum Daily Loads

TMDL = 10 kg/yr

Based on food web and mass balance models

## Load and Wasteload Allocations

Source Category	Allocations Kilograms per year
<b>External</b>	
Direct Atmospheric Deposition	0
Central Valley Watershed	5
Municipal Wastewater Dischargers	2
Industrial Wastewater Dischargers	0.035
Urban Stormwater Runoff	2
Non-Urban Stormwater Runoff	0.1
Urban Stormwater Runoff Treatment by POTWs	0.9
<b>Total</b>	<b>10<sup>c</sup></b>
<b>Internal</b>	
Sediment Dredging and Disposal <sup>a</sup>	
In-Bay Contaminated Sediments <sup>b</sup>	

## Individual Wasteload Allocations

- Wastewater allocations based on average flow
- Stormwater allocations based on population

## Implementation Plan

- Actions to attain allocations and control external sources
- Actions to control and manage internal sources
- Actions to manage risk to human consumers of Bay fish
- Adaptive implementation studies
- Monitor attainment of targets, allocations, and effectiveness of actions

## PCBs TMDL Implementation

## External Sources

## Atmospheric Deposition

- Net loss from the Bay
- No new actions necessary

## Central Valley Watershed

- Lower PCBs concentrations in sediments entering the Bay from the Central Valley
- Sediments carried by episodic high flow events are transported through the Bay and out to the Ocean via the Golden Gate
- No new actions required; allocation will be attained via attenuation

## Urban Stormwater Runoff

- Abate PCBs in runoff from areas with elevated PCBs in soils/sediments
  - Investigate and cause remediation of on-land PCBs contaminated soils and/or sediments
  - Improve system design, operation, and maintenance to increase sediment removal
  - Strategic runoff treatment retrofits
- Abate PCBs in runoff from all areas
  - Control/oversee removal of PCBs containing equipment
  - Control/manage release of PCBs from building materials and waste during demolition/remodeling

## Wastewater Dischargers

- Maintain current treatment performance (solids removal)
- Identify and manage controllable sources
  - e.g. Industries with PCBs containing equipment and/or historical uses

## Approaches to NPDES Permit Effluent Limits

- Southern California - interim limits equal to the current analytical method's detection limit of 0.5 µg/L
- SF Bay industrial wastewater dischargers – current interim limits also method detection limit of 0.5 µg/L
- Delaware river – wasteload allocations based on a water quality criterion of 7.9 pg/L, interim limitations are BMPs
- Boston Harbor – Average Monthly Effluent limit is expressed as 45 pg/L without dilution, translates to about 1 µg/L

## Urban Stormwater Runoff Treatment by Wastewater Facilities

- Strategic diversion of dry weather and first flush runoff discharges
  - Areas with elevated PCBs in soils/sediments
  - Existing runoff pump stations
- Joint efforts by urban runoff and wastewater agencies

## Internal Sources

## Dredge Material Disposal

- LTMS in-Bay disposal volume targets
- No disposal of sediments above ambient PCBs concentrations

## In-Bay “Hot Spots”

- Water Board actions
  - maintain inventory and set priorities for investigating and remediating sites
  - Issue clean-up orders for certain sites
- Other Agency actions
  - Coordination between USEPA and CA DTSC with Water Board on clean-up actions
- Responsible parties' actions
  - Conduct site investigation/clean-up activities
  - Quantify PCBs mass on site and rate of sediment accretion or erosion

## In-Bay “Hot Spots”

Known and potential In-Bay PCBs sites	Lead Agency	Status
<b><u>Work completed</u></b>		
Oyster cove	Water Board	Completed
Redwood harbor	USACE	Completed
Emeryville crescent	Water Board	Completed
<b><u>Work in progress</u></b>		
Alameda naval air station Seaplane lagoon	U.S. EPA	Record of Decision
Hunter's point shipyard	U.S. EPA	Feasibility Study....
Yosemite Creek	Water Board	Site Investigation
Moffett field/NASA Ames-Site 25	U.S. EPA	Feasibility Study
Moffett field/NASA Ames-Northern Channel	U.S. EPA	Remediation in 2006
Oakland Army Base	DTSC	Feasibility Study
Potrero point	DTSC	Site Investigation
<b><u>Work not started</u></b>		
Oakland harbor		
San Francisco airport		
San Leandro bay		
Vallejo ferry terminal		

## Risk Management

- Water Board will work with the California Office of Environmental Health Hazard Assessment, the California Department of Health Services, and dischargers to
  - Provide multilingual fish-consumption advice
  - Inform the public about monitoring data and findings regarding hazards of eating PCBs-contaminated fish
  - Perform special studies needed to support health risk assessment and risk communication.
  - Address public health impacts of PCBs in San Francisco Bay/Delta fish

## Next Steps

- Peer Review (December/January)
- Public Notice (February/March)
- Testimony Hearing (April/May)
- Adoption Hearing (June/July)